

REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

Claims 1-3 and 5-25 are presently active in this case, Claim 1 having been amended, Claim 4 having been canceled without prejudice or disclaimer, and Claims 10-25 having been added by way of the present Amendment.

In the outstanding Official Action, Claims 1, 4, and 5 were rejected under 35 U.S.C. 102(b) as being anticipated by Haber et al. (U.S. Patent No. 5,298,023). Claims 2, 3, and 6-9 were rejected under 35 U.S.C. 103(a) as being unpatentable over Haber et al. in view of Cornacchia et al. (U.S. Patent No. 5,472,403). For the reasons discussed below, the Applicant requests the withdrawal of the art rejections.

Claim 1 of the present application recites an automatic injection device comprising piston holders holding cylinder pistons and plural systems of heads having a drive mechanism for moving the piston holders forward and backward, whereby the device can hold a plurality of syringes and operates injection or suction in each syringe independently. The device comprises a backward-moving prohibition mechanism for prohibiting the backward-moving of the piston holder of a second head when the piston holder of a first head is in a forward-moving state and the piston holder of the second head is in a stopped state. The backward-moving prohibition mechanism is a disc brake or a worm gear.

The Official Action cites the Haber et al. reference for the teaching of the injection device recited in original Claim 1. The Official Action indicates that the backward-moving prohibition mechanism is taught in the Haber et al. reference as a ratchet drive mechanism,

citing column 3, lines 7-19, of the Haber et al. reference. The Applicant submits that the Haber et al. reference does not disclose or even suggest a backward-moving prohibition mechanism that is a disc brake or a worm gear as recited in amended Claim 1 of the present application. As the Haber et al. reference does not disclose all of the limitations recited in Claim 1 of the present application, the Applicant submits that the Haber et al. reference does not anticipate Claim 1.

Furthermore, the Applicant notes that the ratchet drive mechanism of the Haber et al. reference discussed on column 3, lines 7-19 is ratcheted to provide audible and tactile indications of amount of the pharmaceutical being dispensed, not to stop the backward moving. More detailed descriptions are found on column 10, lines 37-48, and column 16, lines 21-33, of the Haber et al. reference. Referring to these portions and Figs. 26 and 28, the spring wires 322 and 324 do not appear to be strong enough to stop the backward moving of ratcheted stem. Therefore, the Haber et al. reference fails to disclose a backward-moving prohibition mechanism.

Accordingly, the Applicant requests the withdrawal of the anticipation rejection of Claim 1.

Claims 2, 3, and 5-9 are considered allowable for the reasons advanced for Claim 1 from which they depend. These claims are further considered allowable as they recite other features of the invention that are neither disclosed, taught, nor suggested by the applied references when those features are considered within the context of Claim 1.

Newly added Claims 10-25 are considered allowable as they recite features of the invention that are neither disclosed nor suggested by the references of record.

New Claim 10 recites an automatic injection device comprising, among other features, a ratchet and a ratchet pole, wherein when the piston holder of a first head is in a forward-moving state then the ratchet pole is engaged with the ratchet whereby the piston holder of a second head is in a stopped state and backward-moving of the second head is prohibited, and wherein the engagement is releasable in order to allow the second head to move in a backward-moving state.

New Claim 10 is supported, for example, by the description of Embodiments 3 and 4 on pages 11-13 of the specification. The Haber et al. reference is silent about the release of the engagement of the ratchet and the ratchet pole (see, e.g., the discussions regarding spring wires 322, 324 and Figs. 26 and 28 in the Haber et al. reference). By way of illustration and not limitation, the present application describes embodiments in which during the injection of a first chemical solution (e.g. contrast media) from a syringe on a first head (e.g. head A), undesirable backflow of the first chemical solution into a syringe on a second head (e.g. head B) containing a second chemical solution (e.g. physiological saline solution) is prevented. Also, since the engagement of the ratchet is releasable, head B can be retracted by backward-movement. The backward-movement is used to bring the head B in the dead end as the initial position or may be used to fill a chemical solution (e.g. physiological saline solution) in the syringe on the head B. The Haber et al. reference never discloses such a device.

New Claim 18 recites an automatic injection device comprising piston holders holding cylinder pistons and plural systems of heads having a drive mechanism for moving the piston holders forward and backward, whereby the device can hold a plurality of syringes and operates injection or suction in each syringe independently. The device comprises an

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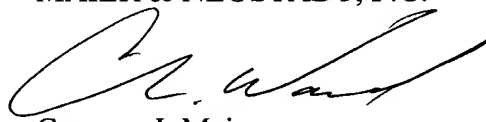
electromagnetic brake, wherein the electromagnetic brake is turned on when the piston holder of a first head is in a forward-moving state and the piston holder of a second head is in a stopped state, whereby backward-moving of the second head is prohibited, and wherein the electromagnetic brake is turned off when the second head is moving state.

New Claim 18 is supported by the description of Embodiment 1 in the specification. In the present invention, the electromagnetic brake is advantageously used to stop the undesirable backward-moving of head B when head B in the stopped state.

Consequently, in view of the above discussion, it is respectfully submitted that the present application is in condition for formal allowance and an early and favorable reconsideration of this application is therefore requested.

Respectfully Submitted,

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